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ABSTRACT

A review of the literature on educational outcomes for children of early childhood education can provide relevant information for policymakers. Research suggests that the quality of programs offered in early childhood centers affects the extent to which children experience education. On the basis of the studies, the main characteristics of low quality centers are: (1) inappropriate caregiver-child ratios; (2) inadequate staff training; (3) large group size; (4) high staff turnover; (5) inexperienced staff; (6) inappropriate programs; (7) low levels of interaction; (8) limited parental involvement; (9) low maintenance of indigenous cultures; and (10) an inadequate physical environment. Insufficient provision of early childhood services adversely affects all children, but affects most strongly those children who are at risk. Recent research also highlights the importance of funding levels in the maintenance of quality programs. In New Zealand, the quality of early childhood centers and the provision of early childhood education compares favorably with the quality and provision found in the United States. Research with children in New Zealand childcare centers supports the importance of high staff-child ratios, staff training, and ongoing inservice training. (Contains 86 references.) (SW)

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Early Childhood Education and Care:

A Summary Review of the Outcomes of Inadequate Provision

Valerie N. Podmore

This Summary Review was Completed for the Ministry of Education

Available from: Distribution Service, New Zealand Council for Educational Research, P.O. Box 3237, Wellington, New Zealand (Fax 64 4 3847933)

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ABSTRACT

This paper summarises research findings on the educational and related outcomes of inadequate early childhood education and care. "Inadequate" is defined as: the provision of low quality early childhood centres, and insufficient provision for early childhood services. Research findings relating funding to the adequacy of early childhood education and care are also included. Throughout the paper education and care of young children are examined as a combined, integrated concept. This is consistent with New Zealand policies and practices.

This paper draws on two recently completed review documents which examined the educational outcomes for children of early childhood education and care (Podmore, 1993) and, what research on the outcomes of early childhood education and care can and cannot tell policy makers (Wylie, 1994). Also included in this paper are some newly accessed studies of aspects of "inadequate" quality, provision, and funding of early childhood education and care.

Some characteristics of early childhood centres of inadequate quality are:

- low ratios of adults to children;
- untrained or insufficiently trained staff;
- large group sizes;
- high staff turnover;
- inexperienced staff;
- developmentally inappropriate programmes;
- low levels of adult-child and child-child interaction;
- limited or minimal parental involvement;
- no maintenance of children's indigenous or minority group language/s and culture.

International research shows that, in comparison with children attending high quality early childhood education and care centres, children from low quality centres tend to be less competent in aspects of classroom social interaction and learning.

Research from the U.S. suggests that inadequate provision of early childhood services has a major impact on children described as "at risk", and the experience of low quality centres can be detrimental to children across socioeconomic and other boundaries. Recent research highlights the importance of funding levels and policies, which impinge on the quality of programmes and the provision of services.

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Valerie Podmore
1994

INTRODUCTION

Definitions and Scope of this Summary Review

The intention of this paper is to summarise research findings on the educational and related outcomes of inadequate early childhood education and care. "Inadequate" includes, in this context, both the provision of low quality early childhood centres, and insufficient provision for early childhood services.

In this paper education and care of young children are examined as a combined, integrated concept. This is consistent with New Zealand policies and practices.

The review draws on two recently completed documents which focused on the outcomes of early childhood education and care. The literature reviews, by Valerie Podmore and Cathy Wylie, examined: the educational outcomes for children of early childhood education and care (Podmore, 1993) and, what research on the outcomes of early childhood education and care can and cannot tell policy makers (Wylie, 1994). In addition, the present summary review includes some newly accessed research concerned with aspects of "inadequate" quality, provision, and funding of early childhood education and care.

New information was retrieved for this review paper through the on-line sources including UnCover and ERIC. There was an extremely short time-frame of 1 week for completion of this review. Accordingly, this document is more accurately described as a summary paper, rather than a comprehensive in-depth analysis of all of the research literature.

Few studies have been designed specifically to investigate the consequences of low quality care and inadequate provision. However, several researchers have included in their samples some early childhood centres which provide relatively low quality care and some with relatively high quality care. Such studies have tended to be carried out in the U.S., where there is considerable variation in the quality of centre-based childcare when compared, for example, with childcare centres in Sweden and other Nordic countries (e.g., Andersson, 1989, 1992, 1993). Recently the childcare system in the U.S. has also been compared unfavourably with the system in France, on the basis of: teacher training and staffing conditions, staff-child ratios, and class sizes (Howes & Marx, 1992).

The American studies which include childcare centres of varying quality are one source of information about educational outcomes for children who experience limited or low quality early childhood education and care.

Outcomes for Children

This paper includes studies that provide some information about children when they are currently experiencing less adequate provision of early childhood education and care. It also includes research on the long-term outcomes for children who have varying early childhood education and care experiences. As Cathy Wylie (1994) commented when reviewing the international research, "concurrent" outcomes of early childhood and education care tend to "feed into" more "cumulative" outcomes.

In the studies summarised here, the educational and other outcomes for children have been assessed in a variety of ways. Standardised intelligence tests tended to be used in the early studies. Other studies have defined outcomes mainly in terms of children's cognitive or language development, using children's scores on tests at school, teacher ratings of children's competence, or observational assessments. Much of the research with infants and toddlers focused on emotional outcomes, including observations of attachment to their mothers, crying, dependency, or aggression. Currently, many studies are concerned with outcomes in the areas of children's social behaviour and their social competence in educational settings; behaviours which in turn are related to children's educational performance.

EARLY CHILDHOOD CENTRES OF INADEQUATE QUALITY

The quality of programmes offered in early childhood centres has an impact on the extent to which children experience educational benefits. The review by Podmore (1993) showed that outcomes associated with the child's age, and with the length of time young children spend in early childhood care and education, tend to be moderated by aspects of the quality of care received in the centre and at home. Stable, regular attendance at high quality education and care centres enhances children's cognitive and social/personality development (Podmore, 1993). A re-examination of this research shows that low quality early childhood centres are associated with neutral or negative outcomes for children's classroom behaviour and learning.

Research on Programme Quality

Infants and Toddlers

An accumulating body of recent research has identified the characteristics of high quality and low quality care for infants and toddlers (e.g., Honig, 1983; Honig & Caldwell, 1981; Honig & Lally, 1988; Honig & Park, 1992; Howes 1986, 1988, 1990, 1991; Howes & Hamilton, 1992).

Carollee Howes (1986) investigated the quality of care experienced by 89 families with 18- to 36-month-old children attending childcare centres. She defined childcare centres as high or low quality according to their staff-child ratios, staff training in child development, and the continuity of caregivers. When compared with the high quality childcare centres, the three main characteristics of **low quality infant-toddler centres** were:

- inadequate caregiver-child ratios - of 1:5 or less;
- inadequate staff training - caregivers had no formal training in child development and no regular inservice training;
- high staff turnover - at least three and up to ten primary caregivers worked at the centre during the course of a year.

Children aged Three and Four Years

Various research studies and reviews have described the types of early childhood programmes that support young children's subsequent development (Moore, 1987; Pancrazio, 1985; Stipek, Daniels, Milburn, Feiler, 1993; Swick & Castle, 1985). Some important variables related to high quality have included:

- centre/group size - having "moderate" sized groups of children at sessions, having adequate teacher-child ratios, and well trained staff (Moore, 1987);

- having a full-time instructional leader supervising adherence to curriculum goals; appropriate staffing, with "dedicated mutually supportive staff providing individual attention to children"; parent involvement; programme continuity; support from nutritional and health care services; clearly defined curriculum goals focused on the child's developmental readiness; and a high level of interaction between adults and children, and among the children (Pancrazio, 1985, p.14);

- emphasising play and having teachers who focus on facilitating children's learning; organised curriculum experiences planned by flexible, encouraging teachers; opportunities for children to conceptualise experiences through adult assistance and using a variety of media; recognition and understanding of young children's emotions and thinking; and the inclusion of parents and the community in planning (Brown, 1985).

In addition, Balasuhramanian and Turnbull (1988), who outlined the characteristics of the compensatory programmes which produced long-term positive educational outcomes for children, specified the essential components of exemplary projects as: having the curriculum and teaching practices based on principles of children's learning, having ongoing parent participation, and including periodic monitoring and evaluation (Balasuhramanian & Turnbull, 1988).

The National Association for Education of Young Children (NAEYC) has published a comprehensive set of guidelines for developmentally appropriate and inappropriate practices in early childhood programmes, and these guidelines have gained international recognition (Bredekamp, 1987). A few early childhood researchers in the U.S. have advocating more structured early childhood programmes (e.g., Fowell & Lawton, 1992). More recent publications show that NAEYC's widely accepted guidelines are in the process of being updated (Bredekamp, 1993). A few minor aspects of the debate on structuring of programmes are still in progress (Bredekamp, 1993; Fowell & Lawton, 1993).

In Ontario, Canada, Gillian Doherty (1990) has produced an annotated bibliography of studies concerned with factors related to quality in childcare. Cathy Wylie (1994) presented a model for quality care based on Doherty's later review of relevant published literature. This model provides an outline of "the main hallmarks of good quality, their inter-relationships, and their bearing on children's wellbeing and development" (Wylie, 1994, p.5). The model includes variables which influence children's wellbeing and development (that is, their health and safety, emotional security, amount and appropriateness of social interaction, communication skills, and cognitive functioning). The variables are: contextual factors (funding, licensing, and parent involvement); caregiver characteristics (education, child development training, and childcare experience); child environment (health and safety, physical setting, adult-child ratio, group size, density, programming and staffing patterns); caregiver-child interaction (developmentally appropriate, responsive, positive, stimulating, versus controlling or restrictive, harsh, detached); and caregiver turnover rate.

Research concerned with the cultural and language contexts of young children from minority

groups suggests that maintenance of children's culture and language is a determinant of quality early education for children from minority ethnic groups (e.g., Laosa, 1991; Soto, 1991; Wong Fillmore, 1991). Maintenance of indigenous languages and cultural revival are factors pertaining to quality and outcomes for children (Podmore, 1993).

On the basis of these groups of studies, it is apparent that characteristics of low quality centres include:

- low ratios of adults to children;
- untrained or insufficiently trained staff;
- large group sizes;
- high staff turnover;
- inexperienced staff;
- developmentally inappropriate programmes;
- low levels of adult-child and child-child interaction, or harsh or controlling interactions;
- limited or minimal parental involvement;
- no maintenance of indigenous language/s and culture;
- an inadequate physical environment (insufficient space, unhealthy, unsafe environment, inadequate equipment).

Another relatively comprehensive conceptualization of quality has developed recently from Lilian Katz' work (1992, 1993a, 1993b). Katz (1992, 1993a) has considered quality from four different viewpoints:

1) the "top-down" or adults' perspective, which includes several characteristics already specified as influencing outcomes for children: adult-child ratios; staff qualifications; staff stability; equipment, space, hygiene and safety provisions and standards; and aspects of working conditions;

2) the "bottom-up" or children's perspective, concerned with whether children feel welcome or captured, accepted or neglected by adults or peers, and whether they find the activities engaging, and challenging, or boring;

3) the "outside-inside" perspective, which examines how the programme "is experienced by the families it serves", and the quality of the relationships among parents and staff;

4) the "inside" perspective, which looks at how the programme is experienced by the staff, and the relationships between staff members, between parents and staff, and between staff and sponsors.

Lilian Katz' fourth perspective makes explicit the issues of management, regulation, and funding, which are major influences on the adequacy or inadequacy of provision of early childhood centres and services. The quality characteristics of Katz' "top-down adults'

perspective", including adult-child ratios, staff qualifications, and staff stability, are strongly related to the adequacy of funding (e.g., Powell & Cosgrove, 1992).

Outcomes of Low Quality Centres

Research from the U.S. has shown that inadequate early childhood centres (with low ratios of adults to children, untrained or insufficiently trained staff, large group sizes, and high staff turnover) are less supportive of young children's learning and development.

Some researchers studying childcare programmes have shown that, compared with the children's socioeconomic background, the quality of the programme has a more important influence on educational outcomes. Kathleen McCartney (1984) reported that the quality of daycare programmes, including the language and reasoning used with the children in the centre, was a strong predictor of children's subsequent scores on 4 different language measures.

Alice Honig's research on infant care in the U.S. emphasises that high quality care is centrally important if infants are to benefit from the experience of centre-based care during the first year of life (e.g., Honig, 1983; Honig & Caldwell, 1981; Honig & Lally, 1988, Honig and Park, 1992).

Research by Carollee Howes in the U.S. has demonstrated the importance of good quality care for toddlers (Howes 1986, 1988, 1990, 1991). Howes (1986) found that, when compared with high quality childcare centres, some problems of **low quality** infant-toddler centres were:

- toddlers were less self-regulated, less compliant with adults, and more resistant to adults' suggestions;
- parents were more stressed and less satisfied with child care, less involved in the centre, and less effective at having their children comply with their requests.

In a later study, Carollee Howes' (1988) results showed that, 3 years after entry to school, the children who had attended low quality, unstable childcare showed:

- less advanced academic skills and school social skills, and more behavioural problems.

Howes (1990, 1991) has described complex interactions between the quality of care, family characteristics, child gender, and the child's age of entry as predictors of young children's cognitive development.

Another longitudinal study from the U.S. by Vandell and colleagues has documented the outcomes of high quality and low- quality childcare experienced by 4-year-old children (Vandell & Powers, 1983; Vandell & Corsaniti, 1990; Vandell, Henderson, & Wilson, 1988). At 6 different daycare centres in Texas, 20 4-year-olds from middle-class families were observed during unstructured play. The children's positive and negative interactions

with peers, their solitary play, and their "unoccupied" behaviour were coded. The childcare centres they attended were assessed as excellent, moderate, or poor, using the quality criteria of: staff-child ratios, staff training, and the size and space within the centre environment. At the age of 8 years, follow-up observations of the 20 children were videotaped in a laboratory playroom during a triadic play session. The triads included a child from each of the three different childcare quality groups. The authors reported significant continuity between the children's interactions at 4 years and 8 years of age. Children who showed more positive interactions with adults at the age of 4 years were rated more socially competent, co-operative, empathic, and able to negotiate conflict by the age of 8 years. Compared to the children from poorer quality daycare, those from better quality centres showed more friendly interactions and fewer unfriendly interactions with peers, and were judged more socially competent, happier, and less shy. Although the samples were small in this study, and there was a change from a natural to a laboratory setting for the follow-up observations, the findings suggest that:

- 4-year-old children who attended low quality childcare centres were less socially competent at school.

John Love (1993) reported observations of 3- and 4-year-old children at 122 daycare classrooms in the state of California. Several measures were used to determine the quality of the daycare centres in terms of staff-child ratios, caregiver-child interactions, and caregiver behaviour or style (rated on the Arnett scale). Children's behaviour, stress, and behaviour problems were observed and rated. Two dimensions of the children's behaviour were found to relate consistently to the quality of the childcare centres' programmes. These were: indicators of stress and other negative behaviour (including crying and fighting), and the percentage of time the children were uninvolved in classroom activities. At centres with lower quality programmes, the children were more often observed using these negative types of behaviour.

From their comprehensive longitudinal study in the U.S., Carollee Howes, Deborah Phillips, and Marcy Whitebrook (1992) have recently provided more detailed data on the educational outcomes of low quality and high quality care for children as they progress through school. They raised some major concerns about children's emotional development and social interaction:

> The large percentage of teacher-avoidant children in this study is disturbing, particularly as attachment behaviors are linked to behavior with peers. Children who are less competent with peers are at risk for peer rejection. Peer rejection appears as a powerful predictor of later negative outcomes, including early withdrawal from school and delinquency (Parker & Asher, 1987).
> (Howes, Phillips, & Whitebrook, 1992, p.459)

Based on their findings, the researchers also commented on inter-linkages between the quality of teaching and the quality of staffing conditions, including staff-child ratios:

> When teachers teach in child care centers meeting reasonably high standards of quality, they are likely to engage in appropriate caregiving and provide developmentally appropriate activities. When teachers teach in centers that fail to meet these standards, they are less likely to be as effective.
> (Howes, Phillips, & Whitebrook, 1992, p.459)

Ellen Galinsky and Dana Friedman (1993) have reiterated the importance of staff-child ratios and group sizes for children in early childhood centres, and most critically, for infants. Citing reports from the National Day Care Study, they concluded that, for infants:

> poorer ratios were correlated with increased emotional distress and less prosocial behavior.
> (Galinsky & Friedman, 1993, p.28).

On the basis of the research carried out by the Syracuse University Family Research Program they also concluded that, among children at family day care homes, those who were in larger sized groups were less verbal, played less, and appeared more distressed, when compared with children in smaller groups.

Conclusions from the National Day Care Study have continued to be confirmed, namely, that ongoing, relevant training for teachers/caregivers is a critical factor determining the quality of care and the outcomes for children. The researchers have found that relevant training at the college (university/tertiary institution) level is most important (Galinsky & Friedman, 1993; Whitebrook, Howes, & Phillips, 1990).

Other major concerns raised most recently have related to the detrimental impact on infants and young children of high staff turnover. From their longitudinal staffing study where they revisited 193 childcare centres, Marcy Whitebrook, Deborah Phillips, and Carollee Howes (1993) have reported that turnover of teaching staff has continued to be high, and that turnover threatens the quality and consistency of services offered. Further staffing concerns influencing stability and quality of provision have been the continuing low salaries of childcare staff in comparison with "other often less educated and less trained members of the civilian work force" and the inadequate provision for the health care needs of staff (Whitebrook, Phillips, & Howes, 1993, p.2). These staffing factors have led to instability of staffing, which in turn impacts negatively on infants and young children.

In Britain, information on the daycare histories of children from birth to 6 years has been collected as part of the Thomas Coram Research Unit Project (Hennessy, Martin, Moss, & Melhuish, 1992). Children who experienced regular changes in daycare arrangements showed slower cognitive development than those who spent a longer time at one centre. Drawing on the TCRU project findings, and research from the U.S. on staff turnover, Eilis Hennessy and colleagues concluded that stable daycare arrangements enhance children's cognitive development, whereas less stable daycare arrangements do not enhance children' learning and development.

INSUFFICIENT PROVISION FOR EARLY CHILDHOOD SERVICES

Children Affected by Inadequate Provision

On the basis of research carried out in the U.S., Britain, and Sweden, an associate professor of education from University of Göteborg in Sweden, Ingrid Pramling, made these comments at a seminar recently held in Wellington:

> An important foundation is already established during the pre-school years. International research shows that children's experiences in pre-school have long-term effects on children's later learning in school (Osborne & Millbank, 1987; Pramling, 1992; Weikart, 1989, 1992)
> (Pramling, 1993, p.2).

Children "at risk", and also those not identified as "at risk", are all likely to be adversely affected by inadequate provision of early childhood services. A lack of accessibility to early childhood services most strongly affects children "at risk", but the existence of low quality centres appears detrimental across socioeconomic and other boundaries.

Much of the research on compensatory early childhood programmes for children "at risk" has been undertaken in the U.S. Several programmes, initiated during the Johnson administration, were part of a "War on Poverty" in the mid-1960s (see Podmore, 1993). Project Head Start began in 1965 as a summer programme for economically disadvantaged children. Later, Head Start expanded to become a very large-scale intervention scheme with a variety of different programmes, some involving drill-and-practice learning procedures, others emphasising children's problem solving experiences. A high level of financial support from the U.S. government has continued to be allocated to Head Start programmes (Holden, 1990).

Several hundred evaluations of Head Start programmes have been reported, and several attempts have been made to synthesise the findings of these studies. Lawrence Schweinhart and David Weikart (1986a) have reported on the methods and findings of The Synthesis Project which included 210 evaluation studies which varied in the rigour and quality of their designs. The studies showed short-term gains for Head Start Children. There were few studies on long-term outcomes, and these showed some mixed findings. However, matched groups of children who were not in Head Start programmes were more likely to fail in a grade or be assigned to special classes (Schweinhart & Weikart, 1986a).

Critical analyses of the evaluations of Head Start have also been presented (Cole & Washington, 1986; Zimiles, 1986). Clearly, the long-term effects of compensatory early childhood education programmes are dependent on the quality of the programmes and the extent to which programmes meet their objectives.

Numerous studies have been published on the outcomes of the Perry Preschool Program of the High/Scope Educational Research Foundation, initiated by David Weikart and colleagues (e.g., Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; Schweinhart & Weikart, 1983; Schweinhart, Berrueta-Clement, Barnett, Epstein, & Weikart, 1985; Schweinhart & Weikart, 1986b; Schweinhart, Weikart, & Toderan, 1993; Weikart, 1987, 1989). This programme was developed in Ypsilanti, Michigan in 1962, to cater for the learning needs of Afro-American children who were poor and considered "at risk" for failing in school (Weikart, 1987). The researchers planned to study the lives of 123 children, including an experimental group who participated in the programme, and a matched control group who did not (Berrueta-Clement et al., 1984; Weikart, 1987). The long-term follow up showed that by age 27 years, those who had attended the programme showed greater social responsibility in terms of fewer arrests, and notably fewer arrests for drug dealing, higher economic status, and significantly higher educational performance. Schweinhart et al. (1993) reported that only 54% of the non-programme group completed 12th grade or a higher level of education, compared with 71% of the group who had attended the preschool programme.

Many other studies of compensatory programmes have also reported at least short-term positive effects of compensatory early childhood education on children's achievement at school (e.g., Balasuhramanian & Turnbull, 1988; Layzer, Goodson, & Layzer, 1989). Contradictory evidence has been reported on the medium- to long-term academic benefits of some compensatory programmes. Consequently, researchers examined more closely the characteristics of the programmes they evaluated (see Alexander & Lovelace, 1988), and re-examined aspects children's intellectual development (Ramey, Yeates, & Short, 1984). Researchers have also noted the limitations of the cognitive assessment measures that were used in the early studies of children "at risk" (Cole & Washington, 1986; and see Podmore, 1993; Wylie, 1994).

More positive findings on children's ongoing school achievement have been reported from the more "exemplary" or higher quality compensatory programmes (Berrueta-Clement et al., 1984; Campbell & Ramey, 1991; Rachal & Garbo, 1988). For example, the Perry Preschool Program has produced more positive findings on welfare, crime, and employment than those reported from other studies of compensatory programmes, including those from the Consortium for Longitudinal Studies (e.g., Haskins, 1989; Lazar, Darlington, Murray, Royce, & Snipper, 1982). The Perry Preschool study also reported long-term benefits such as delinquency prevention and a reduction in teenage pregnancies.

Several researchers have asserted that there have been fewer ongoing, positive educational outcomes from programmes that use drill-and-practice methods and formal didactic teaching, compared with programmes that emphasise child-initiated learning (Miller & Bizzell, 1983; Sigel, 1991; Stipek, Daniels, Galluzzo, & Milburn, 1992; Stipek, Daniels, Milburn, & Feiler, 1993; Weikart, 1991). Deborah Stipek and colleagues (1992, 1993) have demonstrated that children from child-centred programmes experience more benefits in terms of social-motivational outcomes. This finding is consistent with other related work which suggests that strongly didactic approaches tend to have negative outcomes for children's

social behaviour and/or learning (e.g., Marcon 1990; Rothenberg, 1990; Weikart, 1991; see also Podmore 1993, & Wylie, 1994).

Evaluations of the Perry Preschool Program and the higher quality Head Start centres have led to a number of strong statements on funding from writers and researchers concentrating on children from lower socioeconomic groups in the U.S. For example, Lisbeth Schorr and Daniel Schorr (1989) described various compensatory programmes implemented in the U.S. to break "the cycle of disadvantage." They reported favourably on the effectiveness of David Weikart's Perry Preschool Program in terms of long-term educational benefits and crime prevention, and emphasised the importance of adequate funding to maintain quality care and education programmes for at-risk young children. On the basis of their findings on funding and the adequacy or inadequacy of programmes, they stated:

> Most important, public funds must be provided in sufficient amounts to make possible adequate salaries and training for caregivers, and reasonable staff-child ratios.
> (Schorr & Schorr, 1989, p.213)

Numerous research studies and reviews have shown that high quality care and education has educational benefits for a wide range of children, families, and communities (see Podmore 1993; Wylie, 1994). This includes "at risk" children and their families who may have relatively few financial and educational resources, and also children from families who have more resources. Concomitantly, low quality care may have a neutral or negative impact on the learning experiences of children from a wide range of backgrounds.

Douglas Powell (1986) has commented that much of the research on early childhood programme models in the U.S. has involved children from predominantly low-income, Afro-American families, and these findings cannot be generalised to all populations. Nevertheless, a few studies in the U.S. and Britain have investigated the effects of different early childhood education and care programmes on children from middle-class or more economically privileged families (e.g., Howes, Shinn, Sakai, Phillips, Galinsky, & Whitebrook - in Galinsky & Friedman, 1993; Larsen & Robinson, 1989; Osborn & Milbank, 1987; Whitebrook et al., 1990).

In one study from the U.S., Jean Larsen and Clyde Robinson (1989) reported a study of 196 second and third grade children followed up in five waves. Participants included 125 children who had attended a university preschool, and 71 children who had not attended early childhood care and education centres. The preschool programme emphasised social interaction, and "involvement learning" which involved spontaneous self-selection of a range of indoor and outdoor activities, group discussions, and creative activities. Mothers and fathers all participated. The researchers found that, for boys, attendance at early childhood education centres significantly enhanced later achievement at school, and in particular achievement in language-related areas. These results suggest that, among children from "low-risk, educationally advantaged" families, boys who do not have access to good quality early childhood education are less likely to succeed in language tasks at school.

Research currently nearing completion shows that "strong family circumstances" did not protect children from the negative outcomes of low quality care (Howes, Shinn, Sakai, Phillips, Galinsky, & Whitebrook - cited by Galinsky & Friedman, 1993). On the basis of these most recent findings, Ellen Galinsky and Dana Friedman have concluded:

> Children, high- and low-income alike, have been shown to suffer ill effects when they are crowded in programs, when they receive little individualized attention, when they wander aimlessly about, or are pressured into inappropriate activities beyond their grasp...In poor settings, children have a reduced capacity to learn how to learn, to care about learning to feel competent, or to see the world as a place worth learning about.
> (Galinsky & Friedman, 1993, pp.31-32)

Adequacy of Funding

Recent research has highlighted the importance of funding levels, which impinge on the quality of programmes. Bruce Fuller, Stephen Raudenbush, Li-Ming Wei, and Susan Holloway (1992) investigated the independent influence of childcare policies on the quality of centres by conducting a national survey of 1,805 childcare centres in 36 states. The researchers reported that centres with higher quality programmes and practices generally received greater subsidies. The centres with higher subsidies included, but were not limited to, Head Start centres. Conversely, the lower quality programmes had lower levels of funding.

Cathy Wylie (1994) has already discussed the implications of the different forms of funding, and the regulation factors, which influence the provision of early childhood education and care. Her review also emphasised that the longitudinal studies of early childhood intervention programmes for "disadvantaged" groups in the U.S. reported benefits not only for the participating children and for people directly involved with the children, but also for the "public purse" (Wylie, 1994, p.10). This trend was notably evident in the very long-term educational and social benefits experienced by participants in the Perry Preschool study, when compared with a matched control group who had not participated.

Few studies have focused specifically on the cost of higher quality versus lower quality programmes. However, Irene Powell and James Cosgrove (1992) have recently completed an economic analysis of quality and cost in early childhood education in the U.S. These researchers used data from a survey of 205 childcare centres conducted by the National Association for the Education of Young Children (NAEYC). The U.S. General Accounting Office sent questionnaires to all of the centres accredited by NAEYC in 1989. Questions were included about centre characteristics, costs, staff characteristics, and staff compensation, and analyses were based on 182 fully completed questionnaires. The intention was to estimate flexible form cost functions for childcare centres. The researchers used a model which permitted the estimation of "tradeoff between cost and quality factors" with these quality factors: staff-child ratio, the size of the group of children, the education of the staff, staff experience, and staff turnover. Powell and Cosgrove estimated that, at the average centre, having 1 fewer child per staff member would increase costs by 4.5%, and raising the

average education of staff by 1 year would increase costs by 3.4%. However, they found the effect of increasing staff experience by 1 year would be to reduce costs by an average of 0.6%. The authors therefore concluded that:

> Efforts to keep child care providers in the profession...may have a higher rate of return than has previously been recognized. It will improve quality of care and also may reduce costs. We reach a similar conclusion with regard to staff turnover, which appears to impose significant costs on centres as well as reduce the quality of care.
> (Powell & Cosgrove, 1992, p.483)

NEW ZEALAND RESEARCH

In New Zealand, both the quality of early childhood centres and the provision of early childhood education and care compare favourably with the U.S. (McDonald, 1993; Wylie, 1993). Recently, cautions have been raised internationally about the declining priority given here to families, children, and education (e.g., Hewlett, 1993). However, New Zealand is not currently a source of research literature on the outcomes of inadequate quality and availability of early childhood education and care.

Drawing on international research, Anne Smith and David Swain (1988) specified desirable criteria for quality childcare programmes. When re-interpreted in the negative, their writing suggests that inadequate early childhood centres might have: large groups; low staff-child ratios; untrained staff; unstable staffing; unplanned, or adult-centred educational programmes; uninteresting, unsafe physical environments; lack of parent access to programmes; and insensitivity to individual/cultural differences.

Research carried out with staff and parents in kindergartens, childcare centres, playcentres, and kohanga reo in Otago, showed there was a range of values and perspectives on quality early education and care (Farquhar, 1993). Parents and staff thought that programme goals associated with children's social-emotional, language, and physical development were most important. Sarah Farquhar's research approach appeared consistent with Katz's "outside-inside" and "inside" perspectives.

Research with infants and toddlers in New Zealand childcare centres has supported the importance of high staff-child ratios, staff training, and ongoing in-service training, to the quality and adequacy of the services provided (Podmore & Craig, 1991).

Anne Smith, Bruce McMillan, Shelley Kennedy, and Brenda Ratcliffe (1988) have also reported some data on the importance of ratios to outcomes for children in kindergartens. The sample included 4 kindergartens with 2 teachers at each, and an experimental group of 4 kindergartens where there were 2 teachers during the baseline data collection and 3 teachers during subsequent data collections. Overall, the children under observation seldom interacted negatively with their peers. Examples of negative interactions included arguments and aggression among the children. However, the researchers reported that a lower teacher-child ratio was linked to a higher incidence of children's negative interactions with their peers. This research suggests some potential problems for children when there are low ratios of teachers to children in kindergartens.

Aspects of staff-child ratios and staff training have also been addressed in a research review (Wylie, 1989). In addition, several studies of early childhood funding policies have been carried out. Cathy Wylie, Lynne Smith, and June Vize (1988) studied the effects of the funding policies on childcare centres from 1978 to 1988. They reported findings related to The Trained Staff Grant for childcare centres, which aimed to improve levels of staff

training, and to act as an incentive to employ trained staff. A minimum of 50% of the grant was to be allocated to staff salaries. They concluded that, although the grant had a positive impact on staff attention to their programmes and it increased the number of trained staff in childcare centres, there appeared to be some difficulties associated with its retrospective payment (Wylie et al., 1988). This funding incentive was removed with the introduction of bulk funding in 1990, and subsequently, two postal surveys of the impact of bulk funding of kindergartens have been completed (see Wylie, 1993).

Currently, Anne Meade, Anne Hendricks, and Cathy Wylie are investigating the influences of early childhood experiences on children's competence. A recently completed pilot study included children and families from a community childcare centre, an urban playcentre, a rural playcentre, a kindergarten, a family daycare scheme, and a Samoan language nest (Hendricks & Meade, 1993). A small group of non-users of early childhood services was also located, although it was difficult to access this group in Wellington, New Zealand where there are very high rates of participation. An in-depth action research study is in progress, focused on the effects of early childhood staff and parents jointly observing and "nourishing" children's schema development. The aim of the ongoing longitudinal study is to follow children from the age of 4 years 9 months until they leave school. This study has two components: a qualitative study of 300 children, and a large-scale telephone survey of the parents of 1500 young children. The intention is to increase understanding of how different early childhood experiences influence children from different family backgrounds.

SUMMARY

Implications of Inadequate Quality and Provision

In summary, international research shows that characteristics of early childhood centres of inadequate quality include:

- low ratios of adults to children;
- untrained or insufficiently trained staff;
- large group sizes;
- high staff turnover;
- inexperienced staff;
- developmentally inappropriate programmes;
- low levels of adult-child and child-child interaction;
- limited or minimal parental involvement;
- no maintenance of children's indigenous or minority group language/s and culture;
- an inadequate physical environment (insufficient space, unhealthy, unsafe environment, inadequate equipment).

Studies have provided information about children who experience less adequate provision of early childhood education and care, and about the long-term outcomes for children who have varying early childhood education and care experiences. These studies suggest that inadequate quality and provision can have negative outcomes for children. Overall the research shows that, in comparison with children attending high quality early childhood education and care centres, children from low quality centres tend to be less competent in aspects of classroom social interaction and learning.

Research from the U.S. indicates that inadequate provision of early childhood services has a major impact on children described as "at risk", and the experience of low quality centres is detrimental to children regardless of their families' socioeconomic and educational circumstances.

In New Zealand, both the quality of early childhood centres and the provision of early childhood education and care compare favourably with the U.S. Consequently, New Zealand is not currently a source of research literature on the outcomes of inadequate quality and availability of early childhood education and care.

Recent research highlights the importance of funding levels and policies, which impinge on the quality of programmes and the provision of services.

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